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- 1 36. The storage medium of claim 21, said network management
2 process further comprising, in response to a quality of
3 data transmitted to the client below a standard, the step
4 of relocating the client.

- 1 37. The storage medium of claim 36, wherein the step of
2 relocating the client in said network management process
3 further includes the steps of:
4 identifying a parent of the client as a marked node; and
5 searching a new spot for the client, the new spot not
6 being a child of the marked node.

- 1 38. The storage medium of claim 37, wherein the step of
2 relocating the client in said network management process
3 further includes the steps of:
4 in response a sibling of the client having a capacity for
5 the client, connecting the client as a child of the
6 sibling; and
7 in response to the sibling not having the capacity for
8 the client, directing the client to the data stream
9 source.

- 1 39. The storage medium of claim 38, wherein the step of
2 relocating the client in said network management process
3 further includes the step of recursively searching the
4 new spot for the client in the hierarchy structure.

- 1 40. The process of claim 36, said network management process
2 further comprising the step monitoring a jitter of a data
3 stream transmitted to the client.

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- 1 41. A network data transmission system (100), comprising:
2 a content provider (101);
3 a plurality of clients seeking data from said content
4 provider (101); and
5 a client connection manager (105), said client connection
6 manager (105) arranging said plurality of clients
7 in a hierarchy tree structure (102) having a first
8 client (112) of said plurality of clients coupled
9 to said content provider (101) as a node in a first
10 tier of the hierarchy tree structure (102) and at
11 least a portion of remaining clients of said
12 plurality of clients as a descendent of the first
13 client (112).

- 1 42. The network data transmission system (100) of claim 41,
2 the first client (112) receiving data from said content
3 provider (101) and relaying the data to the descendent
4 thereof.

- 1 43. The network data transmission system (100) of claim 42,
2 said plurality of clients further including a second
3 client (122), the second client (122) being a child of
4 the first client (112) in the hierarchy tree structure
5 (102) and receiving the data from the first client (112).

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- 1 44. The network data transmission system (100) of claim 43,
2 said plurality of clients further including a third
3 client (132), the third client (132) being a child of the
4 second client (122) in the hierarchy tree structure (102)
5 and receiving the data from the second client (122).

- 1 45. The network data transmission system (100) of claim 43,
2 said plurality of clients further including a third
3 client (124), the third client (124) being a child of the
4 first client (112) and a sibling of the second client
5 (122) in the hierarchy tree structure (102) and receiving
6 the data from the first client (112).

- 1 46. The network data transmission system (100) of claim 41,
2 said plurality of clients further including a second
3 client (116) coupled to said content provider (101) as a
4 node in a first tier of a second hierarchy tree structure
5 (106), the second client (116) receiving data from said
6 content provider (101).

- 1 47. The network data transmission system (100) of claim 46,
2 said plurality of clients further including a third
3 client (126), the third client (126) being a child of the
4 second client (116) in the second hierarchy tree
5 structure (106) and receiving the data from the second
6 client (116).

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- 1 48. The network data transmission system (100) of claim 47,
2 said plurality of clients further including a fourth
3 client (136), the fourth client (136) being a child of
4 the third client (126) in the second hierarchy tree
5 structure (106) and receiving the data from the third
6 client (126).

- 1 49. The network data transmission system (100) of claim 47,
2 said plurality of clients further including a fourth
3 client (128), the fourth client (128) being a child of
4 the second client (116) and a sibling of the third client
5 (126) in the second hierarchy tree structure (106) and
6 receiving the data from the second client (116).

- 1 50. The network data transmission system (100) of claim 41:
2 said client connection manager (105) arranging said
3 plurality of clients into the hierarchy tree
4 structure (102) in response to data transmission
5 capacities of said content provider (101) and said
6 plurality of clients; and
7 said client connection manager (105) dynamically
8 adjusting the hierarchy tree structure (102) in
9 response to a data transmission quality in the
10 hierarchy tree structure (102).

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- 1 51. A method for communicating between a first site behind a
- 2 first firewall and a second site behind a second
- 3 firewall, comprising:
4 informing the second site about a port on the first
- 5 firewall;
- 6 transmitting a first data packet addressed to the port on
- 7 the first firewall from the second site through a
- 8 port on the second firewall;
- 9 relaying the first data packet to the first site in
- 10 response to the first firewall being promiscuous;
- 11 transmitting a second data packet addressed to the port
- 12 on the second firewall from the first site through
- 13 the port on the first firewall; and
- 14 relaying the second data packet to the second site.

- 1 52. The method of claim 51, wherein informing the second site
- 2 about a port on the first firewall further includes:
- 3 establishing a first link between the first site and an
- 4 external site through the port on the first
- 5 firewall;
- 6 establishing a second link between the second site and
- 7 the external site through the second firewall; and
- 8 transmitting a message from the external source to the
- 9 second site identifying the port on the first
- 10 firewall.

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1 53. The method of claim 52, wherein establishing a first link
2 between the first site and an external site through the
3 port on the first firewall and establishing a second link
4 between the second site and the external site through the
5 second firewall further include:
6 transmitting a first initializing data packet from the
7 first site to the external site through the port on
8 the first firewall; and
9 transmitting a second initializing data packet from the
10 second site to the external site through the second
11 firewall.

1 54. The method of claim 51, further comprising identifying
2 the first firewall as promiscuous.

1 55. The method of claim 54, wherein identifying the first
2 firewall includes:
3 transmitting an outgoing data packet from the first site
4 to the external site through the port on the first
5 firewall;
6 informing a second external site about the port on the
7 first firewall, the second external site having a
8 different network address from the first external
9 site;
10 transmitting an incoming data packet addressed to the
11 port on the first firewall from the second external
12 site; and
13 identifying the first firewall as being promiscuous in
14 response to the first site receiving the incoming
15 data packet.

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- 1 56. A method for communicating between a first site behind a
2 first firewall and a second site behind a second
3 firewall, comprising:
4 informing the first site about the second firewall;
5 informing the second site about a port on the first
6 firewall;
7 transmitting a first data packet addressed to the second
8 firewall through the port on the first firewall;
9 transmitting a second data packet addressed to the port
10 on the first firewall from the second site through
11 a port on the second firewall;
12 relaying the second data packet to the first site in
13 response to the first firewall being non-strict;
14 transmitting a third data packet addressed to the port on
15 the second firewall from the first site through the
16 port on the first firewall; and
17 relaying the third data packet to the second site.

- 1 57. The method of claim 56, wherein informing the first site
2 about the second firewall and informing the second site
3 about a port on the first firewall further include:
4 establishing a first link between the first site and an
5 external site through the port on the first
6 firewall and a second link between the second site
7 and the external site through the second firewall;
8 transmitting a first message from the external source to
9 the first site identifying the second firewall; and
10 transmitting a second message from the external source to
11 the second site identifying the port on the first
12 firewall.

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- 1 58. The method of claim 57, wherein establishing a first link
- 2 between the first site and an external site through the
- 3 port on the first firewall and a second link between the
- 4 second site and the external site through the second
- 5 firewall further includes:
 - 6 transmitting a first initializing data packet from the
 - 7 first site to the external site through the port on
 - 8 the first firewall; and
 - 9 transmitting a second initializing data packet from the
 - 10 second site to the external site through the second
 - 11 firewall.
- 1 59. The method of claim 56, further comprising identifying
- 2 the first firewall as non-strict.
- 1 60. The method of claim 59, wherein identifying the first
- 2 firewall includes:
 - 3 transmitting an outgoing data packet from the first site
 - 4 to a first port of the external site through the
 - 5 port on the first firewall;
 - 6 transmitting an incoming data packet addressed to the
 - 7 port on the first firewall from a second port on
 - 8 the external source, the second port being
 - 9 different from the first port; and
 - 10 identifying the first firewall as being non-strict in
 - 11 response to the first site receiving the incoming
 - 12 data packet.

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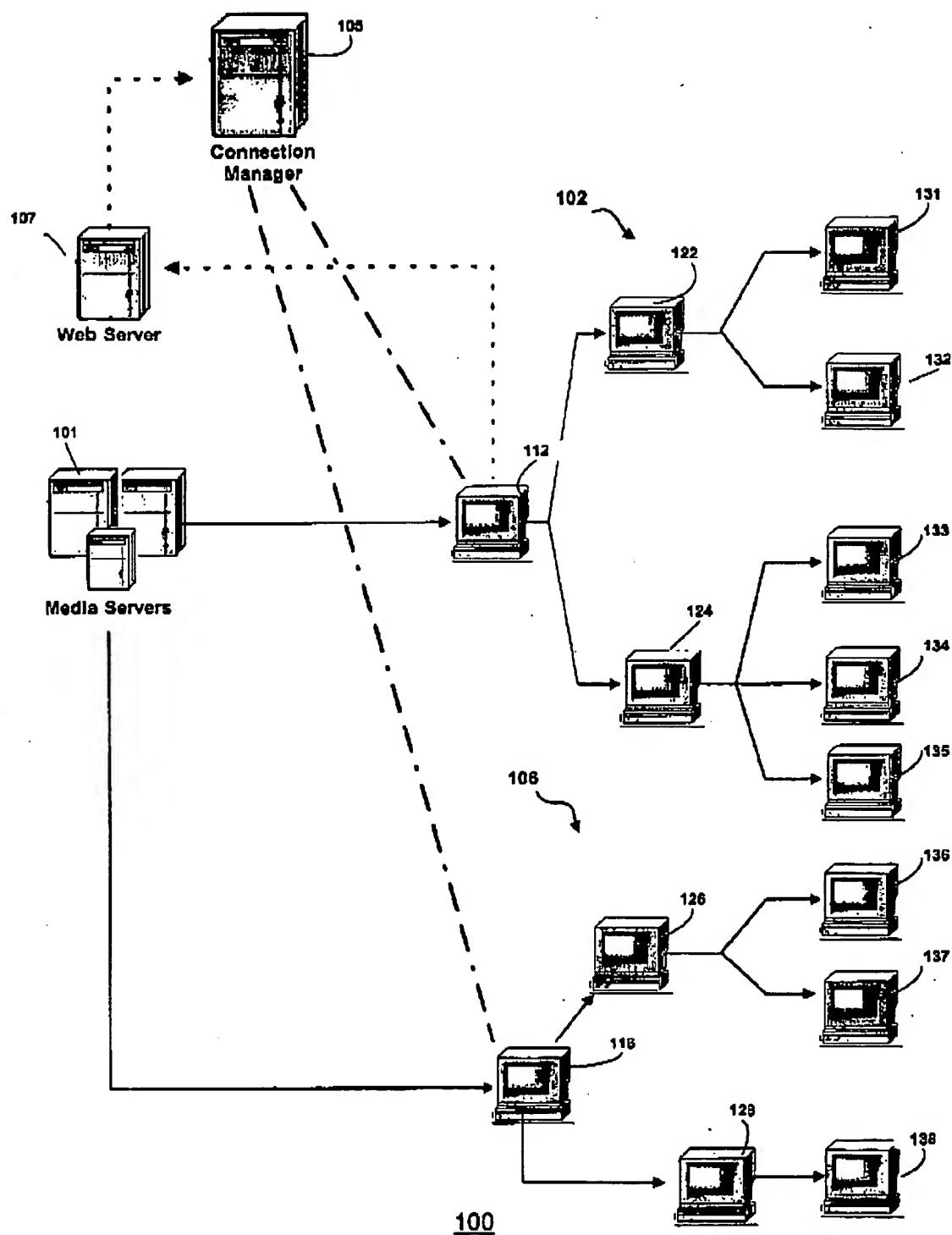


FIG. 1

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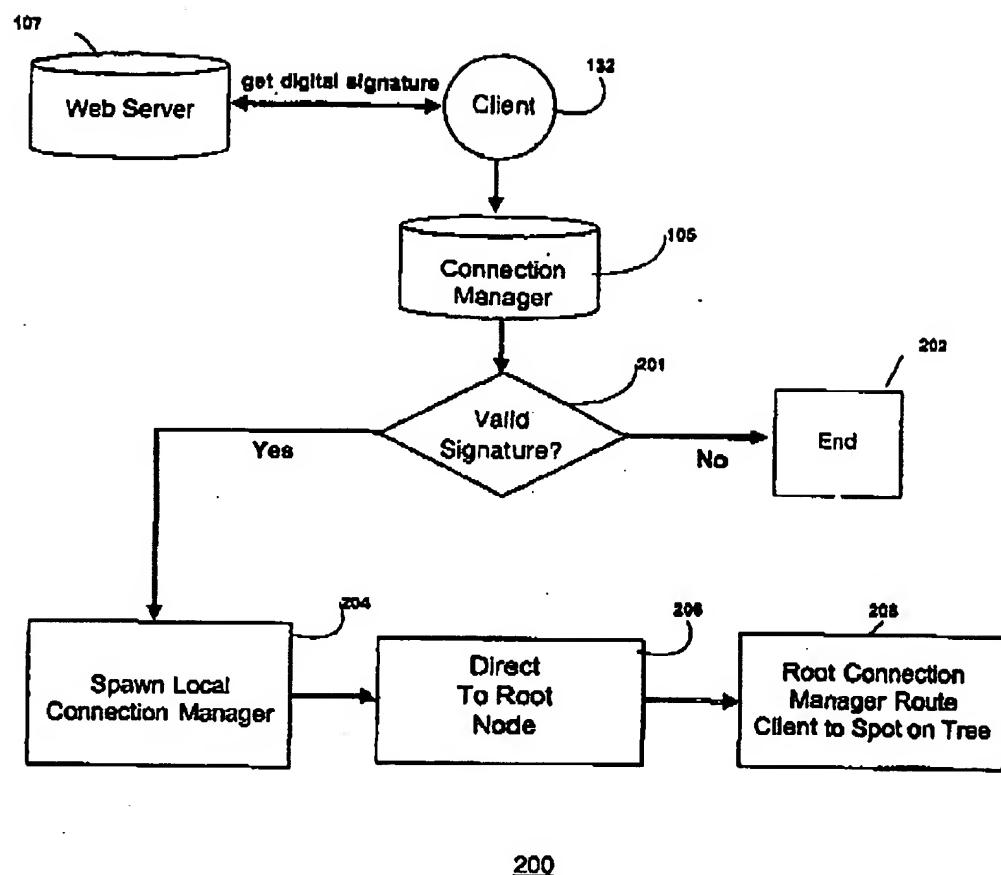
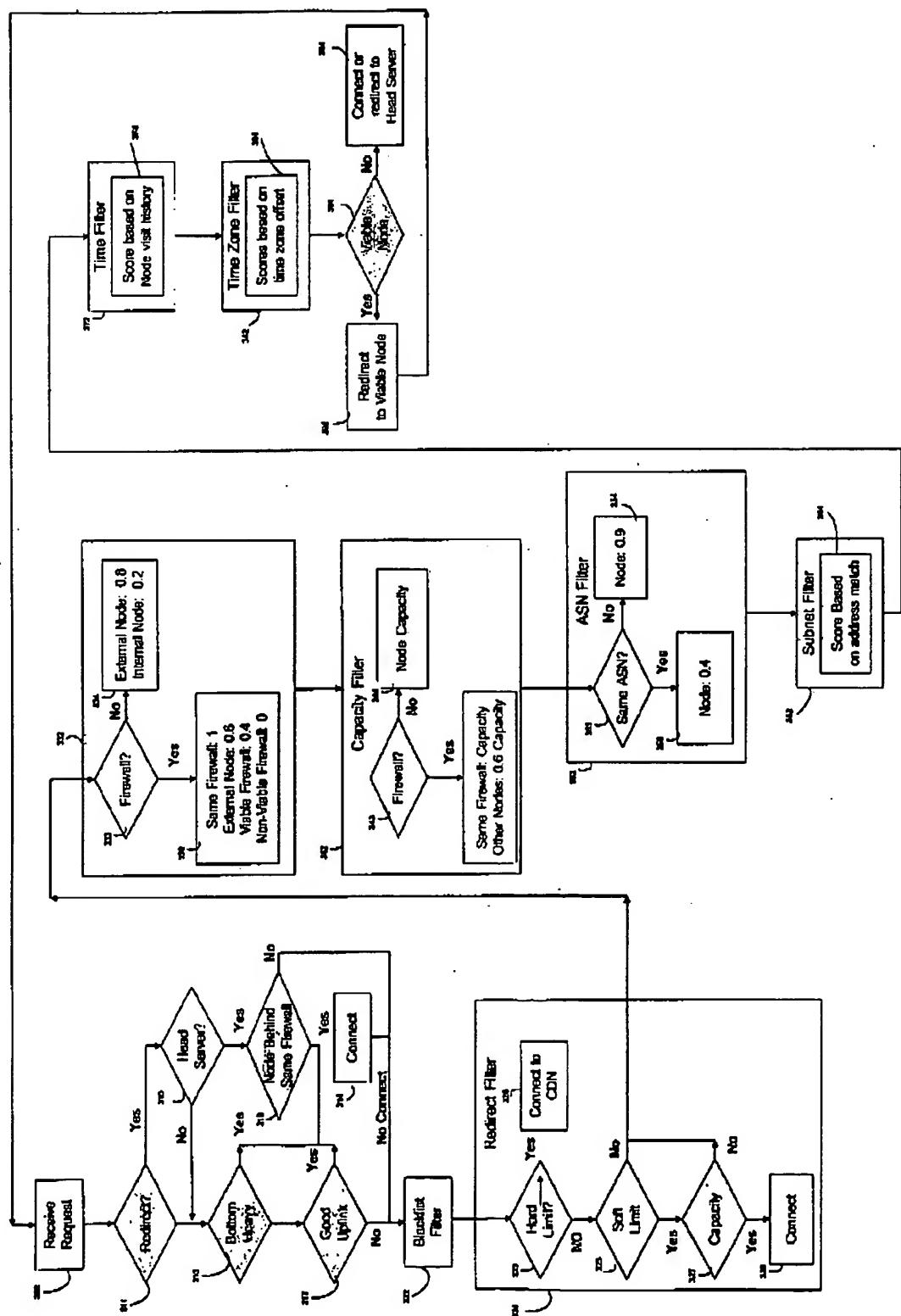


FIG. 2

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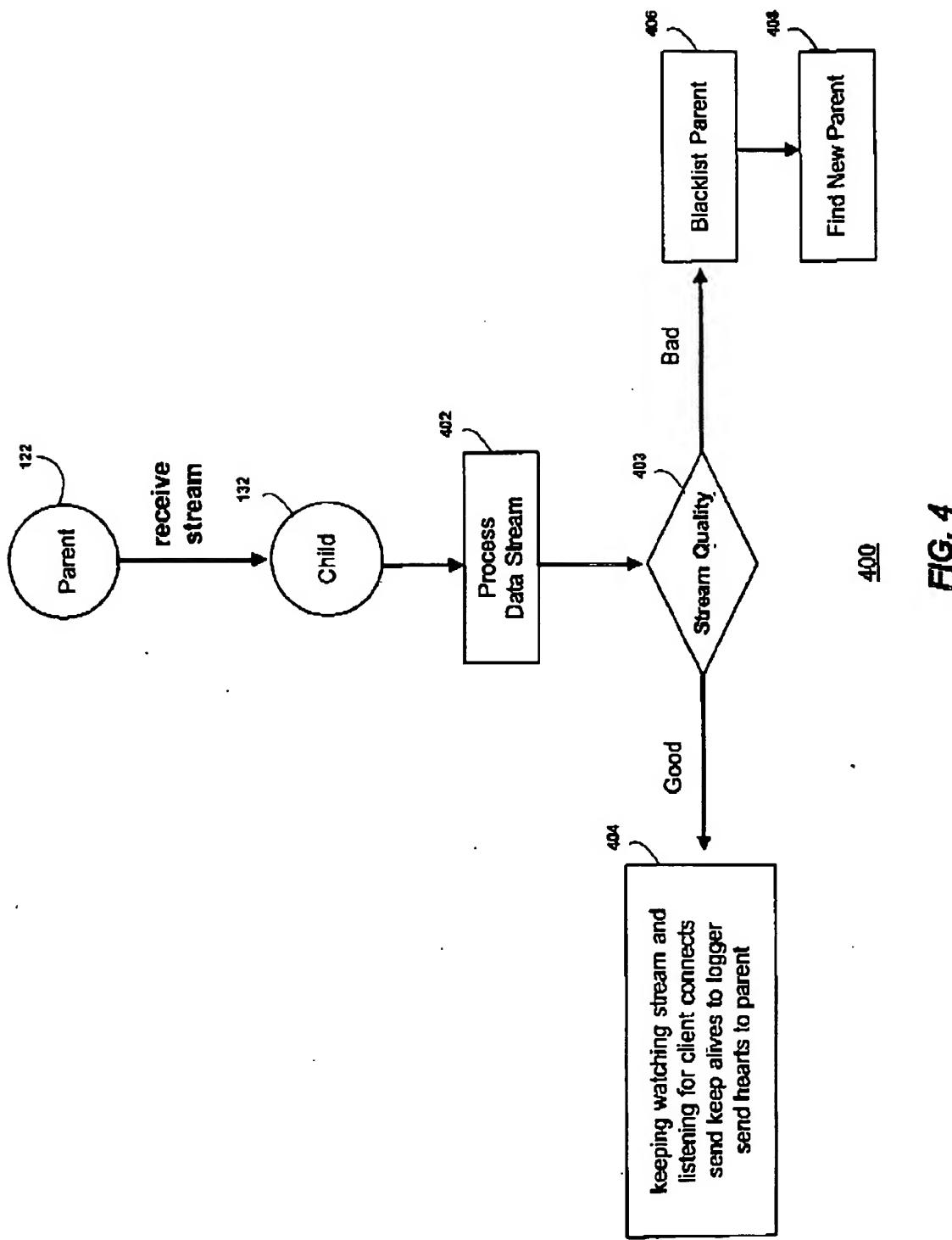


FIG. 4

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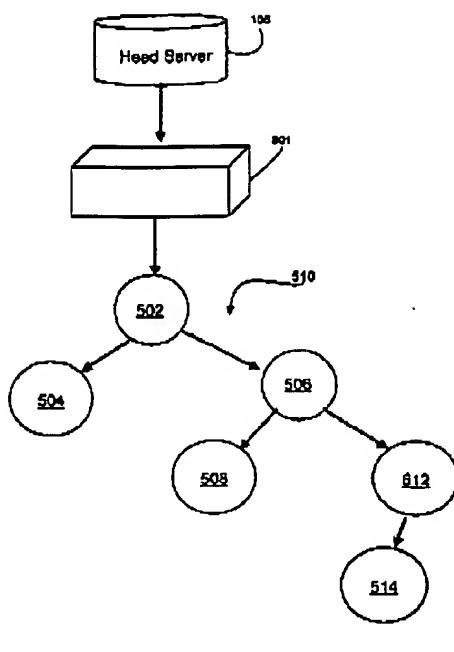


FIG. 5A

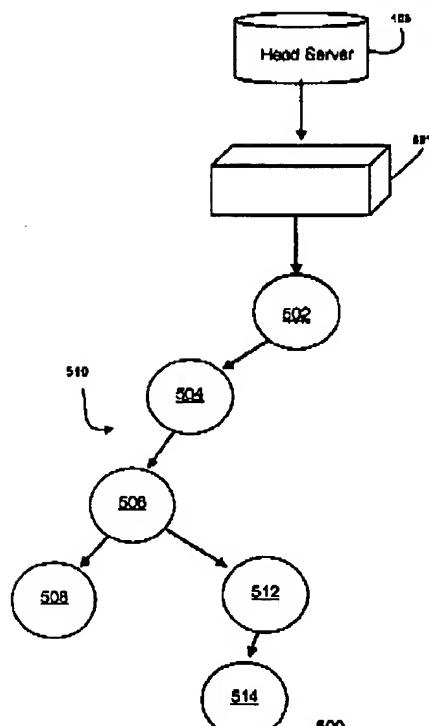


FIG. 5B

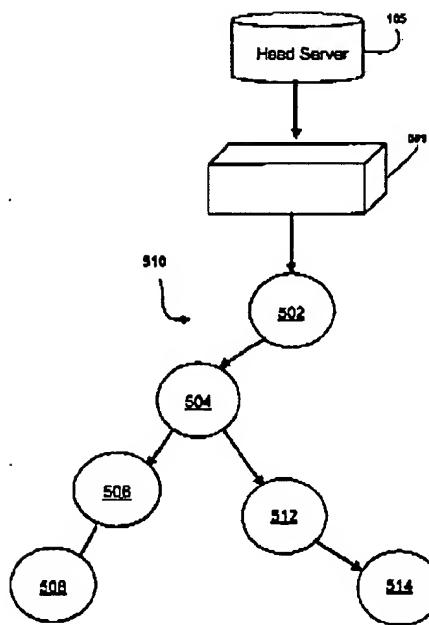
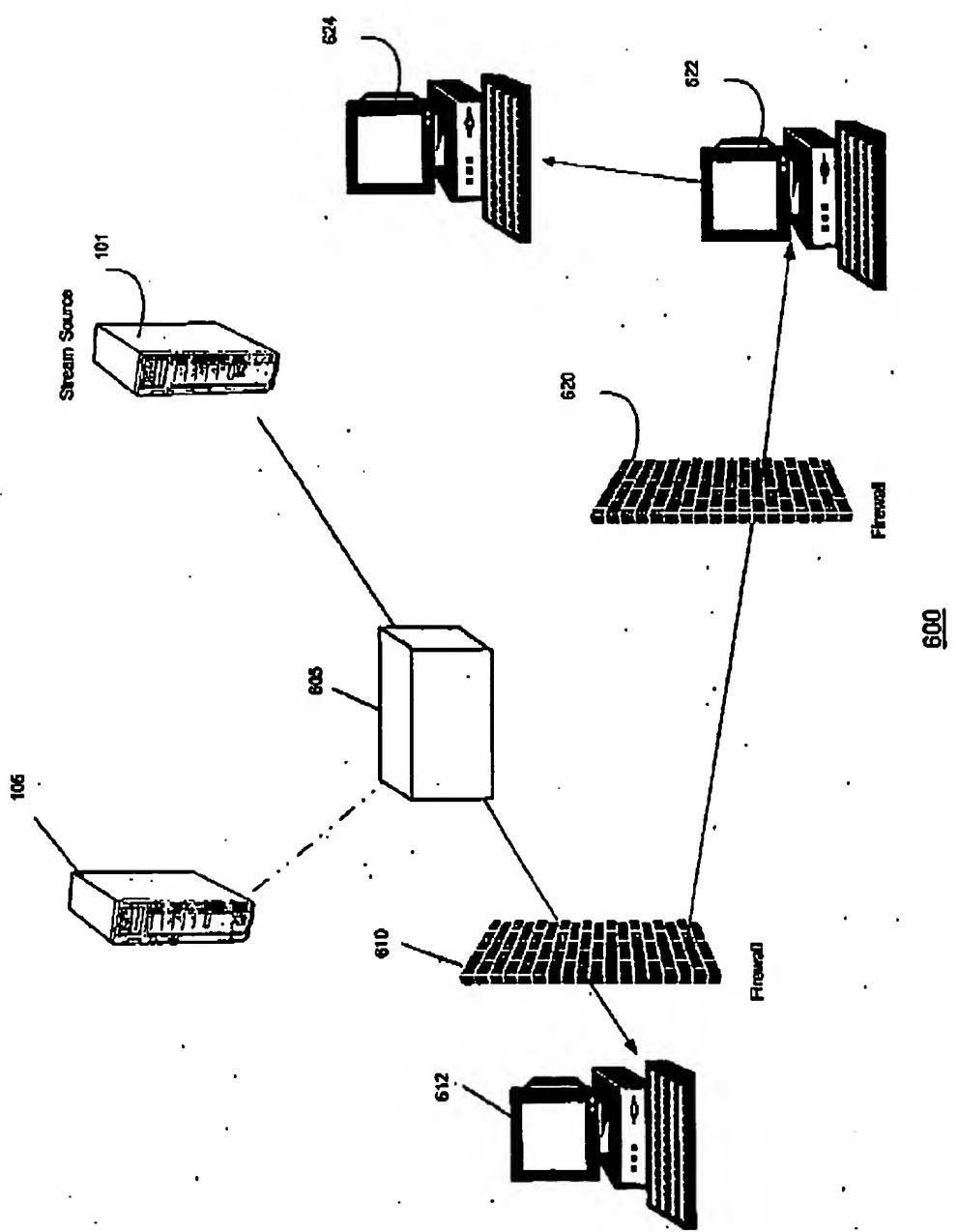


FIG. 5C

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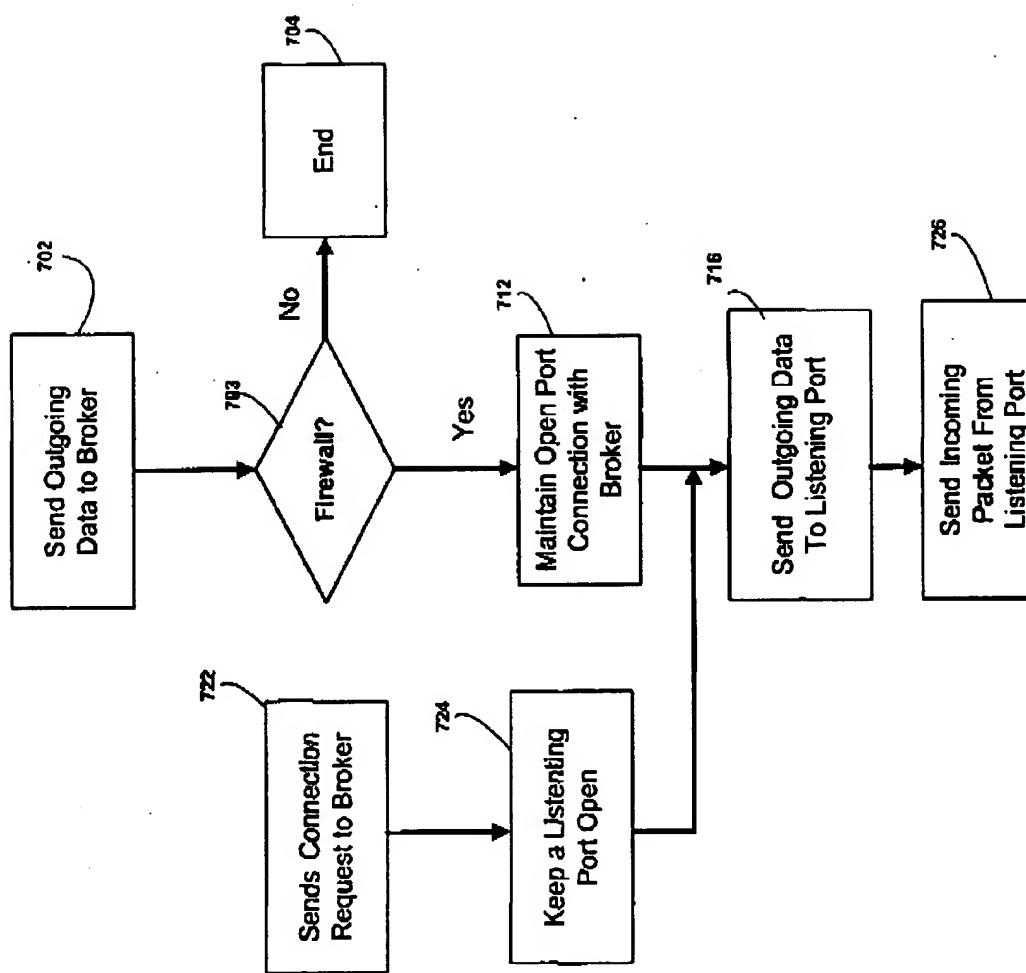
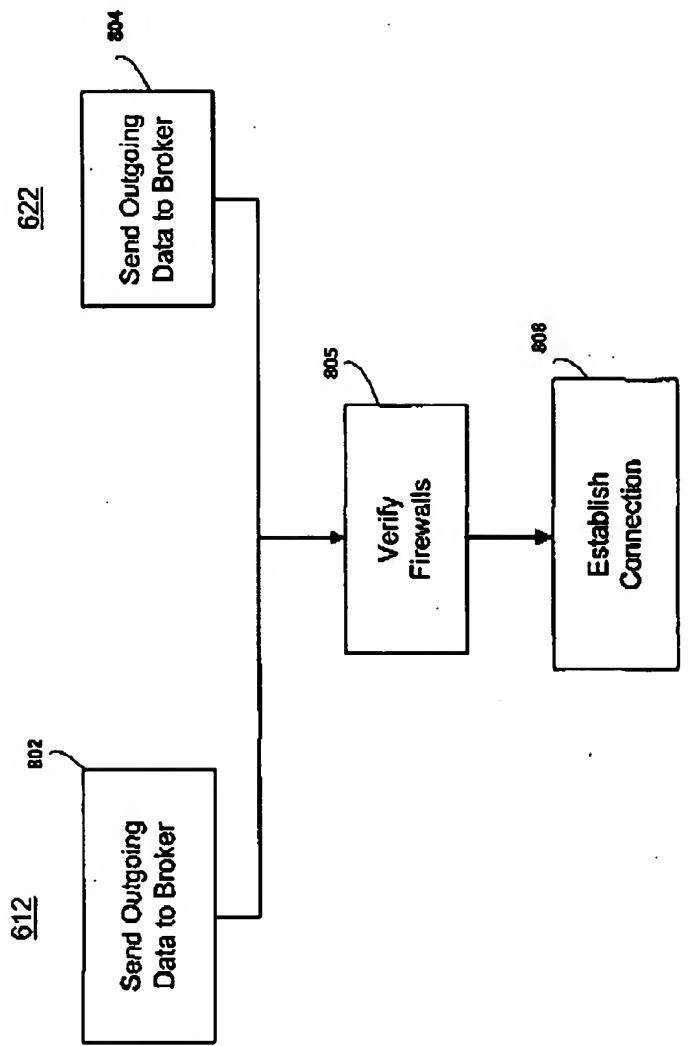


FIG. 7

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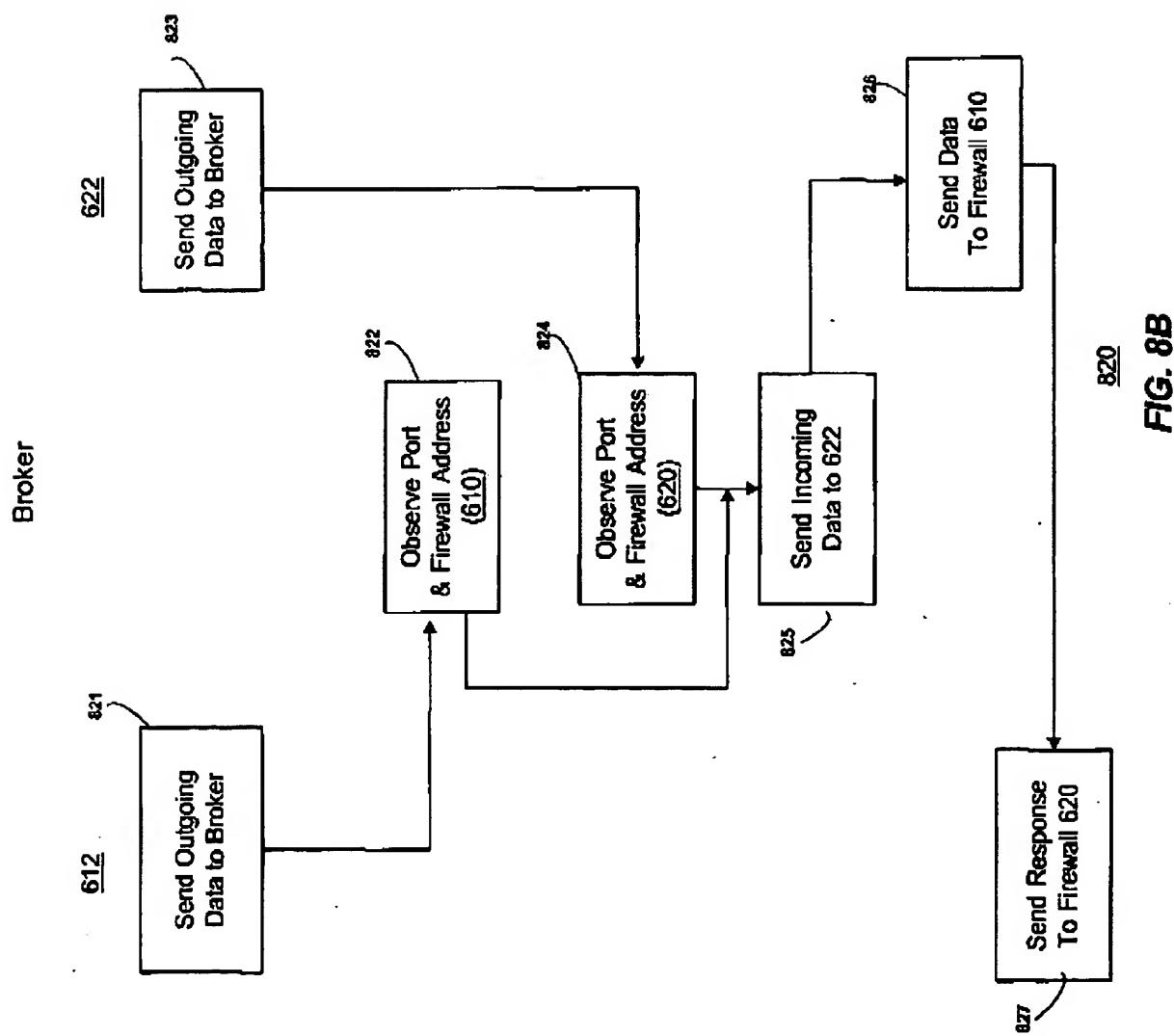
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FIG. 8A

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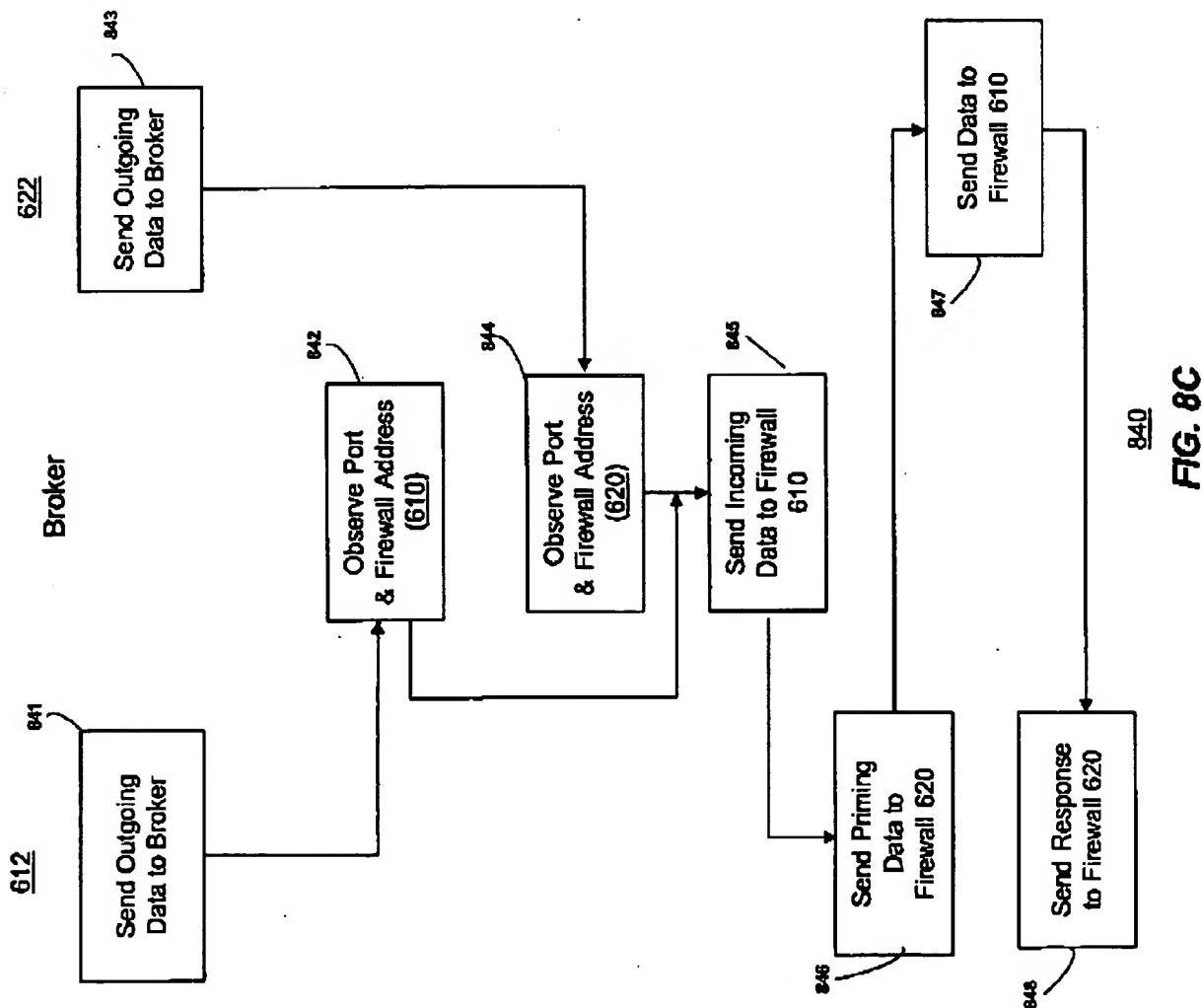
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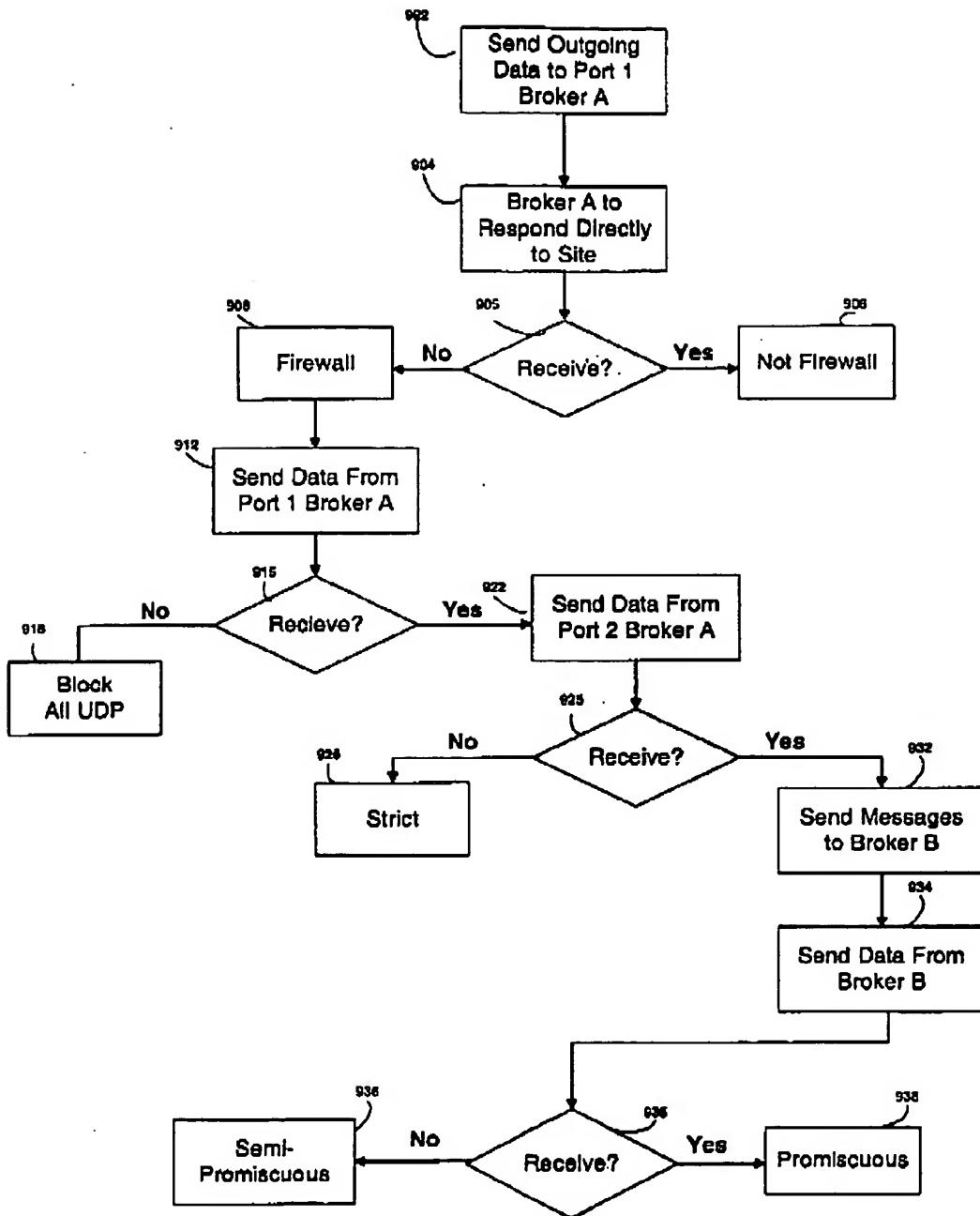
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FIG. 9

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